S7 operation update

Eric Dufresne, TRR group meeting, Feb. 27, 2007

- DW commissioned this run the new 7ID-C Huber 6-circle. DA had to make major changes to the 7ID-C crate to remove the old Kappa records, add new capability for the Huber. He added GPIB support to the 7ID-C crate. DA also built another driver box for the new 7ID-C ADC detector arm slits. It worked well. Tim Mooney added support for two XIA filter units in 7ID-C. DA and DW also commissioned the new Huber XYZ stage on the diffractometer. DW installed an optical table for laser and x-ray optics for the 6-circle experiments.
- EL and Mark Erdmann designed a new laser porthole to deliver the laser beam to 7ID-C. The new porthole was installed and passed routine shielding validation on 1/30. Integration in the PSS system started last Tuesday Feb. 20, and will be completed on March 12-13 during the PSS revalidation. The laser SOP will then be updated and reviewed by ANL.
- A service visit from Coherent occured on 2/5. A new Ti:Sapphire crystal for the amplifier was installed, and it improved the laser mode. EL repaired the water pump on the laser amplifier. Also the laser chiller failed two weeks ago and was replaced temporarily with the cryostat chiller.
- We are also developing plans to bring AC in 7ID-C in the new year. Two new labyrinths were opened on the roof of 7ID-C this shutdown on 1/29/07, and passed routine shielding validation on 1/30.
- DA upgraded the 7ID-A mono to a 5-phase stepper motor on the Bragg angle theta. When disassembling the servo motor, he found it vibrated a bit. The upgrade seems to have improved the beam stability (from preliminary x-ray imaging of the beam). The motor works well.

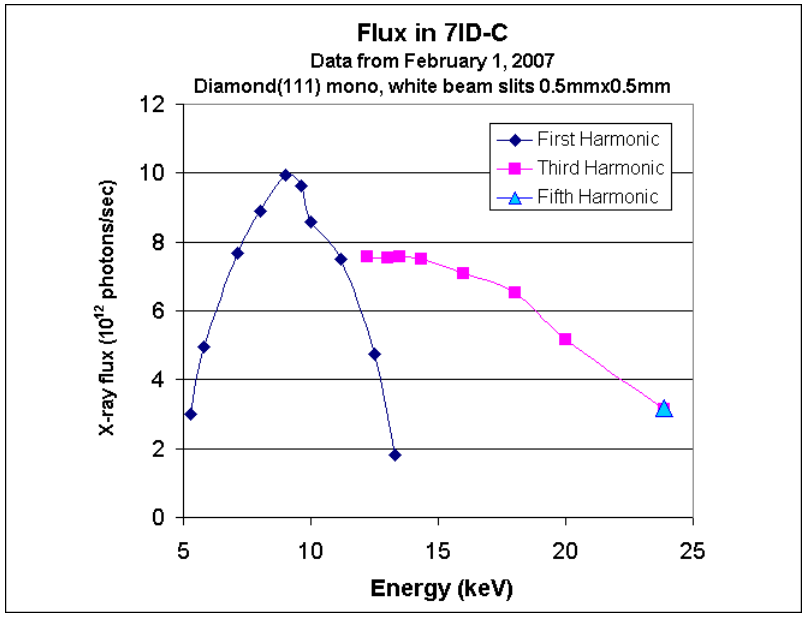
S7 operation update, (cont)

- DW characterized the flux of the monochromator (last slides).
- On Jan. 26, we had an XOR Safety Inspection. Mitigation of deficiencies found is underway.
- DA and ED tried to integrate the 7ID-A monochromator encoder in EPICS during the start-up week but the new Heidenhain decoder box doesn't seem to read the monochromator encoder pulses.
- HG was issued a "Hot work" electrical permit to debug beamline equipment when it is absolutely needed. It is valid for S7 and 8.
- From March 1st, 2007, APS will require all its staff and users to wear safety goggles in the wet labs such as 432 D030.
- ED, BA, Ron Sluiter and Alexei Grigoriev debugged a serious motor problem with the 7ida2 crate. A poorly-seated OMS card was causing missing steps on another card.
- The new control station will be added for 7ID-C next to the new 7ID-D workstation on the Wrightline wall next shutdown.
- We plan to install also a new cable tray near 7ID-D (awaiting funding).

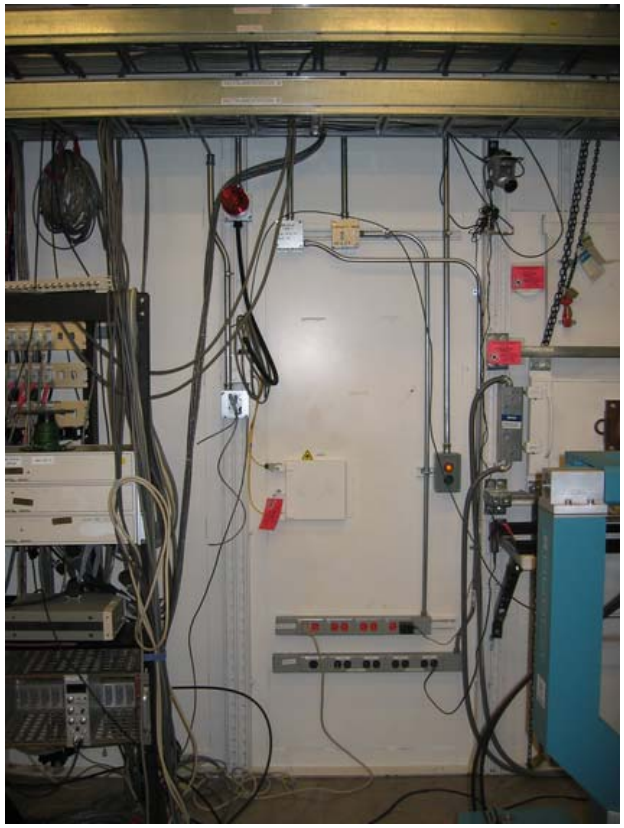
Sector 7 Development and R&D

- JW and partners are developing a plan to complete the 7BM beamline for imaging of fuel sprays. ED and Mark Erdmann (AES) are working on a draft design and equipment needs for the beamline.
- The beamline controls and network will be integrated in the APS network during the May 2007 shutdown. The experimental floor network will be upgraded to 10 Gigabits/s, and all computers on the network will be administered by the APS IT group. The EPICS IOCs will be upgraded to 3.14 by the APS BCDA group. The mhatt.aps.anl.gov domain will be phased out.
- BA made available his full fast data collection system to the group of Paul Evans, allowing collection of all bunches from full 170 APS turns.

Pictures from 7ID-C.



New flux measurements
By Don Walko.



New laser door for laser in 7ID-C

More pictures from 7ID-C

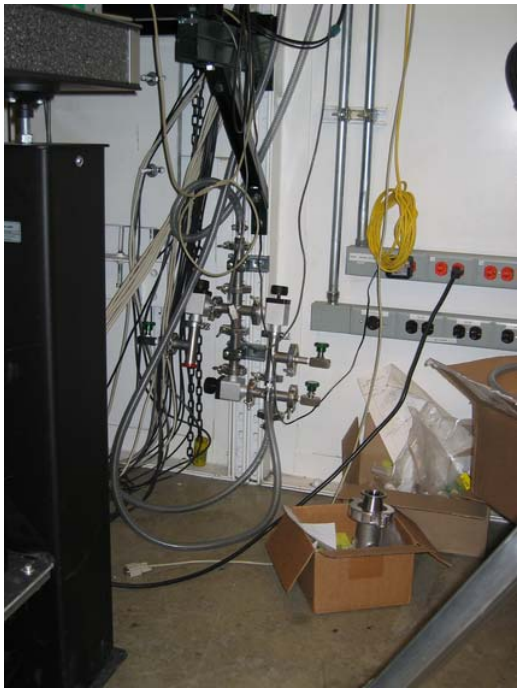
A)

B)

C)

A-C New Huber

D: New vacuum Pump manifold



D)

S7 pictures

New S7 IT network closet and wiring

Laser chiller replacement

S7 pictures (cont.)

2 new labyrinth on roof of 7ID-C